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     (FILE 'HCAPLUS' ENTERED AT 11:41:17 ON 23 APR 1998)
               DEL HIS Y
L1          4676 S SELF ASSEMB?
L2        126526 S MONOLAYER# OR CELL# (L) (LINE# OR CULTURE#)
L3         51767 S SUPPORT#
L4        168472 S PEPTIDE# OR OLIGOPEPTIDE# OR POLYPEPTIDE#
L5             1 S L1 AND L2 AND L3 AND L4
L6        740589 S CELL#
L7             1 S L1 AND L6 AND L3 AND L4
L8           134 S L1 (L) L4
L9             2 S L8 AND L3
L10           31 S L8 AND (L2 OR L6)
L11            6 S L8 AND (SUPPORT#)/AB
L12      1159149 S METAL# OR SILICA OR SILICONE# OR GLASS
L13            9 S L8 AND L12
L14           16 S L5 OR L7 OR L9 OR L11 OR L13
L15           25 S L8 (L) MONOLAYER#
L16            4 S L15 AND (L3 OR SUPPORT#/AB OR L12)
L17           16 S L14 OR L16

     FILE 'HCAPLUS' ENTERED AT 11:55:10 ON 23 APR 1998

=> D .CA 1-16


L17  ANSWER 1 OF 16  HCAPLUS  COPYRIGHT 1998 ACS
AN   1997:408739  HCAPLUS
DN   127:106017
TI   Metal-dependent self-assembly of protein tubes, cables,
     and sheets
AU   Schurke, P.; Jochheim, C. M.; Dabrowski, M. J.; Atkins, W. M.
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CS Department of Medicinal Chemistry, University of Washington, Seattle, WA, USA
SO Biomacromol.: 3-D Appl., Hanford Symp. Health Environ., 34th (1997), Meeting Date 1995, 193-202. Editor(s): Ornstein, Rick L. Publisher: Battelle Press, Columbus, Ohio.
CODEN: 64PSAT
DT Conference
LA English
AB Amino acid side chains from His-4, Met-8 and His-12 from adjacent glutamine synthetase (GS) dodecamers in a docked complex provide an apparent binuclear metal binding site which mediates formation of protein tubules. Replacement of Met-8 and His-12 with cysteine results in mutant proteins with altered metal ion specificity for the stacking reaction. Studies with model peptides demonstrate the feasibility of such an intermol. metal-binding site. Addnl., when this metal-binding site on the surface of the GS dodecamer was destroyed by site-directed mutagenesis, a metal-dependent lateral aggregation occurred, which generated sheets of hexagonally packed GS dodecamers.
CC 7-5 (Enzymes)
ST glutamine synthetase self assembly **metal** binding
IT Functional sites (enzyme)
(**metal**-binding; **metal**-dependent self-assembly of bacterial glutamine synthetase tubes, cables, and sheets)
IT Monolayers
Quaternary structure (protein)
Self-association
(**metal**-dependent self-assembly of bacterial glutamine synthetase tubes, cables, and sheets)
IT 7440-48-4, Cobalt, biological studies 7440-50-8, Copper, biological studies 7440-66-6, Zinc, biological studies
RL: BPR (Biological process); BIOL (Biological study); PROC (Process)
(**metal**-dependent self-assembly of bacterial glutamine synthetase tubes, cables, and sheets)
IT 9023-70-5, Glutamine synthetase
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(**metal**-dependent self-assembly of bacterial glutamine synthetase tubes, cables, and sheets)
IT 192320-30-2 192320-31-3
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(**peptide** model; **metal**-dependent **self-assembly** of bacterial glutamine synthetase tubes, cables, and sheets)
IT 63-68-3, L-Methionine, biological studies
RL: BPR (Biological process); BIOL (Biological study); PROC (Process)
(residue 8; **metal**-dependent self-assembly of bacterial glutamine synthetase tubes, cables, and sheets)
IT 71-00-1, L-Histidine, biological studies
RL: BPR (Biological process); BIOL (Biological study); PROC (Process)
(residues 4 and 12; **metal**-dependent self-assembly of bacterial glutamine synthetase tubes, cables, and sheets)

L17 ANSWER 2 OF 16 HCAPLUS COPYRIGHT 1998 ACS
AN 1997:160357 HCAPLUS

TI **Peptide**-containing **self-assembled monolayers**: Investigation of the effect of interchain hydrogen bonding upon electron transfer.
AU Clegg, Robert S.; Reed, Scott M.; Barron, Bridgette L.; Rear, Jamieson A.; Hutchison, James E.
CS Materials Science Institute, University Oregon, Eugene, OR, 97403-1253, USA
SO Book of Abstracts, 213th ACS National Meeting, San Francisco, April 13-17 (1997), COLL-123 Publisher: American Chemical Society, Washington, D. C.
CODEN: 64AOAA
DT Conference; Meeting Abstract
LA English
AB Self-assembled monolayers (SAMs) offer access to highly ordered, surface-confined mol. structures as functional models for investigations of long-range electron transfer processes in redox proteins. We have introduced hydrogen bonding into alkanethiol SAMs by synthesizing precursor mols. contg. peptide (amide) moieties. The resulting monolayers possess microcryst., densely packed methylene chains with hydrogen bonding between neighboring amide moieties as shown by external reflective IR spectroscopy. Elemental compn. and thickness of the monolayers have been obtained by XPS. These monolayers form excellent electrochem. spacers as characterized by electrochem. blocking and double-layer capacitance measurements. The exptl. **support** for the structural characterization will be summarized. We have formed mixed monolayers from electroactive amide-contg. precursors with (1) amide-contg. and (2) non-amide-contg. non-electroactive diluents. The effect of hydrogen bonding upon electron transfer in these monolayers by cyclic voltammetry and chronoamperometry will be reported.

L17 ANSWER 3 OF 16 HCAPLUS COPYRIGHT 1998 ACS
AN 1997:130471 HCAPLUS
DN 126:238641
TI **Self-assembly** of cyclic **peptides** on a dendrimer: multiple cyclic antigen **peptides**
AU Spetzler, Jane C.; Tam, James P.
CS Vanderbilt Univ., Nashville, TN, USA
SO Pept. Res. (1996), 9(6), 290-296
CODEN: PEREEO; ISSN: 1040-5704
PB Eaton
DT Journal
LA English
AB Multiple cyclic antigen peptides (McAPs) are dendrimers that have branched, multiple closed-chain architectures. An approach is described for a stepwise, solid-phase synthesis that permits a self-assembly of cyclization reactions of a McAP with four copies of cyclic peptides in soln. after their cleavage from the resin with all protecting groups removed. The conceptual framework of our approach is the development of a method favoring intrachain cyclization based on ring-chain tautomerism between an N-terminal Cys and an aldehyde attached to the side chain of Lys to form a loop linked by a thiazolidine ring. The McAP precursor contains an N-terminal Cys(St-Bu) and an internal Lys(Ser). A trialkylphosphine is used to deblock Cys(St-Bu) on the amino terminus and to effect the concomitant thiazolidine formation with the glyoxyl moiety

obtained from an oxidative conversion of the Ser on the Lys side chain. Two McAPs, each contg. cyclic peptides of 17 and 24 amino acides residues, have been prepd. To evaluate intrachain cyclization yields, a cleavage site as Asp-Pro is incorporated at the carboxy terminus of each monomeric loop and subsequently released after completion of the cyclization by treatment with formic acid at an elevated temp. Reversed-phase HPLC analyses of the liberated cyclic peptide monomer with synthetic stds. **support** the theory that intrachain cyclization is the predominant cyclization pathway and validate the usefulness of this ring-chain tautomerization concept in the self-assembly of cyclic peptides on a branched peptide dendrimer.

CC 34-3 (Amino Acids, Peptides, and Proteins)

ST multiple cyclic antigen **peptide self assembly**; solid phase prepn multiple antigen cyclopeptide; thiazolidine cyclization multiple antigen **peptide** prepn

IT **Peptides**, preparation
RL: SPN (Synthetic preparation); PREP (Preparation)
(dendrimers; **self-assembly** of cyclic **peptides** on a dendrimer in prepn. of multiple cyclic antigen **peptides**)

IT Cyclization
Solid-phase **peptide** synthesis
(**self-assembly** of cyclic **peptides** on a dendrimer in prepn. of multiple cyclic antigen **peptides**)

IT 6719-33-1, 5,5-Dimethoxypentanoic acid 35737-10-1D, ester with Wang resin 71989-14-5D, ester with Wang resin 71989-28-1 71989-33-8 71989-38-3 73724-43-3 78081-87-5 119831-72-0 132388-59-1 150629-67-7 156648-40-7 167393-62-6
RL: RCT (Reactant)
(**self-assembly** of cyclic **peptides** on a dendrimer in prepn. of multiple cyclic antigen **peptides**)

IT 188555-30-8P 188555-32-0P 188555-34-2P 188555-36-4P 188555-37-5P
RL: SPN (Synthetic preparation); PREP (Preparation)
(**self-assembly** of cyclic **peptides** on a dendrimer in prepn. of multiple cyclic antigen **peptides**)

L17 ANSWER 4 OF 16 HCAPLUS COPYRIGHT 1998 ACS
AN 1996:682987 HCAPLUS
DN 126:44557
TI Applications of a self-assembled bilayer coating on a fused-**silica** capillary surface for capillary electrophoresis
AU Huang, Mingxian; Bigelow, Mark; Byers, Michael
CS Supelco, Inc., Bellefonte, PA, 16823, USA
SO Am. Lab. (Shelton, Conn.) (1996), 28(16), 32, 34-36
CODEN: ALBYBL; ISSN: 0044-7749
PB International Scientific Communications
DT Journal
LA English
AB Several applications of self-assembled bilayer coated column in capillary electrophoresis and capillary gel electrophoresis of proteins and peptides, ribonucleotides, and DNA fragments are discussed.

CC 9-7 (Biochemical Methods)
IT Capillary electrophoresis
Capillary gel electrophoresis
(applications of a self-assembled bilayer coating on a fused-**silica** capillary surface for capillary electrophoresis)
IT DNA
Nucleotides, processes
Peptides, processes
Proteins (general), processes
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(applications of a **self-assembled** bilayer coating on a fused-**silica** capillary surface for capillary electrophoresis)

L17 ANSWER 5 OF 16 HCAPLUS COPYRIGHT 1998 ACS
AN 1996:559241 HCAPLUS
DN 125:257089
TI **Self-assembling peptide monolayers**: endothelial cell behavior on functionalized **metal** substrates
AU Chaikof, E. L.; Wang, H. S.; Winger, T. M.; Stephens, S.; Dluhy, R. A.
CS Dep. Surgery, Emory Univ., Atlanta, GA, 30322, USA
SO Mater. Res. Soc. Symp. Proc. (1996), 414(Thin Films and Surfaces for Bioactivity and Biomedical Applications), 17-22
CODEN: MRSPDH; ISSN: 0272-9172
DT Journal
LA English
AB Despite the high initial success rate with metallic stents for the treatment of a variety of vascular lesions, problems have included occlusion due to thrombus formation or intimal proliferation. Improving the biol. behavior of these and other implantable metallic devices may require the use of biomimetic peptide coating which promote specific cellular responses at the biol.-materials interface. Thiol-terminated peptides, without the addn. of a cysteine residue, were synthesized by a modification of std. solid phase methodol. Gold/mica or gold/glass surfaces were exposed for 6 h at 23.degree. to one of three peptide solns.: GRGD(.beta.A)3YNH(CH2)2SH (RGD); (.beta.A)6NH (CH2)2SH (bAla); or a 1:1 mix of both peptides. Peptide films were examd. by external reflectance IR (IR) spectroscopy and at. force microscopy (AFM) which confirmed the presence of unique close-packed structures for bAla and the 1:1 mix. Endothelial cell proliferative, migratory, and adhesive behavior were evaluated using 3H-thymidine and 51Cr labeling techniques, resp. Cell proliferation, migration, and adhesion were significantly higher on RGD contg. peptide films. Well-ordered protein assemblies on metallic substrates can be produced with the proper choice of peptide chain structure and terminal residues. Biol. activity is a function of film compn. and oligopeptide pendant structure.
CC 63-7 (Pharmaceuticals)
ST **peptide self assembling metal** substrate
IT **Peptides**, biological studies
RL: BPR (Biological process); PRP (Properties); BIOL (Biological study); PROC (Process)
(endothelial cell behavior of **self-assembling**

peptide monolayers on functionalized **metal** substrates)

IT Molecular association
(self-, endothelial cell behavior of **self-assembling peptide monolayers** on functionalized **metal** substrates)

IT Medical goods
(stents, endothelial cell behavior of **self-assembling peptide monolayers** on functionalized **metal** substrates)

IT 182183-66-0 182183-67-1
RL: BPR (Biological process); PRP (Properties); BIOL (Biological study); PROC (Process)
(endothelial cell behavior of **self-assembling peptide monolayers** on functionalized **metal** substrates)

L17 ANSWER 6 OF 16 HCAPLUS COPYRIGHT 1998 ACS
AN 1996:332907 HCAPLUS
DN 125:61391
TI Self-assembled molecular films based on a sugar ligand
IN Bednarski, Mark D.; Wilson, Troy E.; Mastandra, Mark S.
PA University of California, USA
SO U.S., 19 pp. Cont. of U. S. Ser. No. 617, 988, abandoned.
CODEN: USXXAM
PI US 5510481 A 960423
AI US 93-146485 931029
PRAI US 90-617988 901126
DT Patent
LA English
AB Functionalized monomers are presented which can be used in the fabrication of mol. films for controlling adhesion, detection of receptor-ligand binding and enzymic reactions; new coatings for lithog.; and for semiconductor materials. The monomers are a combination of a ligand, a linker, optionally including a polymerizable group, and a surface attachment group. Carbohydrate, peptide, and org. compd. functional monomers are cast on substrates, e.g. silicone wafer, and crosslinked forming mol. film. Triethoxysilylmannoside (from D-mannose) (or its deacetylated form) was made and attached to silicone wafer forming a hydrophilic surface (water contact angle 32 .+-.9.degree.).
IC ICM C07H015-04
ICS C07H015-00; C07H023-00; B32B009-04
NCL 536120000
CC 44-3 (Industrial Carbohydrates)
Section cross-reference(s): 35, 38, 75
IT Films
(**self-assembled** mol. films based on a sugar ligand **peptide** ligand or functional org. ligand)
IT Siloxanes and **Silicones**, preparation
RL: BUU (Biological use, unclassified); IMF (Industrial manufacture); BIOL (Biological study); PREP (Preparation); USES (Uses)
(sugar group-contg.; self-assembled mol. films based on a sugar ligand)
IT Surface
(hydrophilic, **self-assembled** mol. films based

on a sugar ligand **peptide** ligand or functional org. ligand)

IT 137870-36-1P 137870-38-3P 137870-40-7P 178323-66-5P
RL: IMF (Industrial manufacture); PREP (Preparation)
(in **peptide** functional mol. film attached to **silicone** wafer; **self-assembled** mol. films)

IT 146064-06-4P
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation)
(intermediate for **peptide** polymerizable monomer; **self-assembled** mol. films)

IT 131606-62-7P 178323-64-3P
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation)
(prepn. and polymn.; self-assembled mol. films based on a sugar ligand and attached to **silicone** wafer)

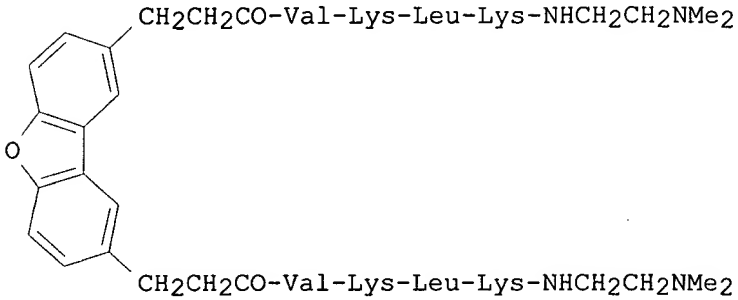
L17 ANSWER 7 OF 16 HCAPLUS COPYRIGHT 1998 ACS
AN 1996:259461 HCAPLUS
DN 125:2949
TI Self-addressable self-assembling microelectronic systems and devices for molecular biological analysis and diagnostics
IN Heller, Michael J.; Tu, Eugene; Evans, Glen A.; Sosnowski, Ronald G.
PA Nanogen, Inc., USA
SO PCT Int. Appl., 154 pp.
CODEN: PIXXD2
PI WO 9601836 A1 960125
DS W: AU, BR, CA, CN, FI, JP, NZ
RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE
AI WO 95-US8570 950705
PRAI US 94-271882 940707
DT Patent
LA English
AB A self-addressable, self-assembling microelectronic device is designed and fabricated to actively carry out and control multistep and multiplex mol. biol. reactions in microscopic formats. These reactions include nucleic acid hybridizations, antibody/antigen reactions, diagnostics, and biopolymer synthesis. The device can be fabricated using both microlithog. and micromachining techniques. The device can electronically control the transport and attachment of specific binding entities to specific micro-locations. The specific binding entities include mol. biol. mols. such as nucleic acids and polypeptides. The device can subsequently control the transport and reaction of analytes or reactants at the addressed specific micro-locations. The device is able to conc. analytes and reactants, remove nonspecifically bound mols., provide stringency control for DNA hybridization reactions, and improve the detection of analytes. The device can be electronically replicated.
IC ICM C07H021-00
CC 3-1 (Biochemical Genetics)
Section cross-reference(s): 9, 14, 15, 33, 34
IT Deoxyribonucleic acids
Ribonucleic acids
Peptides, analysis
RL: ANT (Analyte); SPN (Synthetic preparation); ANST (Analytical study); PREP (Preparation)
(self-addressable **self-assembling** microelectronic systems and app. for mol. biol. anal. and

diagnostics)
IT **Glass**, oxide
Plastics
RL: ARU (Analytical role, unclassified); DEV (Device component use); ANST (Analytical study); USES (Uses)
(self-addressable self-assembling microelectronic systems and app. for mol. biol. anal. and diagnostics)

L17 ANSWER 8 OF 16 HCAPLUS COPYRIGHT 1998 ACS
AN 1995:740889 HCAPLUS
DN 123:115558
TI Polymers useful in forming self-assembled bonded anisotropic ultrathin coatings
IN Grainger, David W.; Sun, Fang
PA Research Corporation Technologies, Inc., USA
SO PCT Int. Appl., 48 pp.
CODEN: PIXXD2
PI WO 9421386 A2 940929
DS W: CA, JP
RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE
AI WO 94-US3153 940323
PRAI US 93-37065 930325
DT Patent
LA English
AB Polymers having anchoring side chains and optionally functional groups are manufd. for forming ultrathin, chem. adherent, anisotropic coatings on substrates. A typical polymer was manufd. by reaction of Me hydrogen siloxane with 1,2-epoxy-7-octene and 1H,1H,2H-perfluoro-1-decene.
IC ICM B05D005-00
ICS G11B005-72; A61F002-00; C08G077-38; B05D001-18
CC 42-10 (Coatings, Inks, and Related Products)
Section cross-reference(s): 37
IT Amino acids, uses
Peptides, uses
Proteins, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(functional groups; polymers with anchoring side chains useful in forming **self-assembled** chemisorbed anisotropic ultrathin coatings)
IT Antibodies
Antigens
Phosphazene polymers
Polyamides, uses
Polyethers, uses
Polyimides, uses
Siloxanes and **Silicones**, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(polymers with anchoring side chains useful in forming self-assembled chemisorbed anisotropic ultrathin coatings)

L17 ANSWER 9 OF 16 HCAPLUS COPYRIGHT 1998 ACS
AN 1995:337426 HCAPLUS
DN 122:188134
TI Peptidomimetic Host That Binds a **Peptide** Guest Affording a .beta.-Sheet Structure That Subsequently **Self-Assembles**. A Simple Receptor Mimic

AU LaBrenz, Steven R.; Kelly, Jeffery W.
CS Department of Chemistry, Texas AM University, College Station, TX, 77843-3255, USA
SO J. Am. Chem. Soc. (1995), 117(5), 1655-6
CODEN: JACSAT; ISSN: 0002-7863
DT Journal
LA English
OS CJACS-IMAGE; CJACS
GI



I

AB A peptidomimetic receptor I incorporating a 2,8-dibenzofuran-bis-(3-propionic acid) residue was prepd. to sep. two peptide strands by a distance of approx. 10 .ANG. such that tetrapeptide guest HO2CCH2CH2CO-Glu-Leu-Glu-Leu-NHCH2Ph could bind between these strands in an extended conformation. The cationic host strongly prefers anionic guests having an amphiphilic periodicity of 2 and does not bind to most tetrapeptides. Binding of the host to the guest is followed by self-assocn. of the host-guest complex, mimicking the behavior of biol. receptors. The binding event has been uncoupled from the self-assembly by linking the host to a chromatog. **support** in order to characterize the binding of several tetrapeptide guests by high performance affinity chromatog.
CC 34-3 (Amino Acids, Peptides, and Proteins)
Section cross-reference(s): 22
IT Inclusion reaction
(prepn. of a peptidomimetic host that binds **peptide** guests affording a .beta.-sheet structure that subsequently **self-assembles**)
IT **Peptides**, properties
RL: PRP (Properties)
(prepn. of a peptidomimetic host that binds **peptide** guests affording a .beta.-sheet structure that subsequently **self-assembles**)
IT Conformation and Conformers
(.beta.-sheet, prepn. of a peptidomimetic host that binds **peptide** guests affording a .beta.-sheet structure that subsequently **self-assembles**)
IT 637-84-3 926-79-4 161528-35-4 161528-36-5 161528-37-6 161528-38-7
RL: PRP (Properties)
(prepn. of a peptidomimetic host that binds **peptide** guests affording a .beta.-sheet structure that subsequently

self-assembles)
IT 161528-32-1P 161528-33-2P
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(prepn. of a peptidomimetic host that binds **peptide** guests affording a .beta.-sheet structure that subsequently **self-assembles**)
IT 161528-34-3 161528-39-8, 2,8-Dibenzofurandipropanoic acid
RL: RCT (Reactant)
(prepn. of a peptidomimetic host that binds **peptide** guests affording a .beta.-sheet structure that subsequently **self-assembles**)

L17 ANSWER 10 OF 16 HCAPLUS COPYRIGHT 1998 ACS
AN 1994:696517 HCAPLUS
DN 121:296517
TI Biologically addressable **monolayer** structures formed by templates of sulfur-bearing molecules
AU Duschl, Claus; Liley, Martha; Corradin, Gianpietro; Vogel, Horst
CS Inst. Chimie Physique II, Ecole Polytech. Federale Laussane, Lusanne, CH-1015, Switz.
SO Biophys. J. (1994), 67(3), 1229-37
CODEN: BIOJAU; ISSN: 0006-3495
DT Journal
LA English
AB We demonstrate that the combined application of Langmuir-Blodgett and self-assembly techniques allows the fabrication of patterns with contrasting surface properties on gold substrates. The process is monitored using fluoroscence microscopy and surface plasmon spectroscopy and microscopy. These structures are suitable for the investigation of biochem. processes at surfaces and in ultrathin films. Two examples of such processes are shown. In the first example, the structures are addressed through the binding of a monoclonal antibody to a peptide. This demonstrates the formation of self-assembled monolayers by cysteine-bearing peptides on gold, and the directed binding of proteins to the structured layers. A high contrast between specific and unspecific binding of proteins is obsd. by the patterned presentation of antigens. Such films possess considerable potential for the design of multichannel sensor devices. In the second example, a structured phospholipid layer is produced by controlled self-assembly from vesicle soln. The structures created, areas of phospholipid bilayer surrounded by a matrix of phospholipid monolayer, allow formation of a supported bilayer which is robust and strongly bound to the gold **support**, with small areas of free-standing bilayer which very closely resemble a phospholipid cell membrane.
CC 9-16 (Biochemical Methods)
Section cross-reference(s): 6, 15, 66
ST Langmuir Blodgett **self assembly** biol structure; **monolayer peptide** monoclonal antibody structure; phospholipid bilayer structure gold **support**; surface biochem property study structure prepn; ultrathin film biochem property study structure
IT Surface
(combination of Langmuir-Blodgett and **self-assembly** techniques for prepn. of patterns with contrasting surface properties on gold substrates for study of

biochem. processes at)

IT Phospholipids, biological studies
RL: BPR (Biological process); PRP (Properties); SPN (Synthetic preparation); BIOL (Biological study); PREP (Preparation); PROC (Process)
(gold-supported bilayer structure of; combination of Langmuir-Blodgett and **self-assembly** techniques for prepn. of patterns with contrasting surface properties on gold substrates for study of biochem. processes)

IT **Cell** membrane
(prepn. of phospholipid bilayer structure resembling)

IT Films
(Langmuir-Blodgett, combination of Langmuir-Blodgett and **self-assembly** techniques for prepn. of patterns with contrasting surface properties on gold substrates for study of biochem. processes)

IT **Peptides**, biological studies
RL: BPR (Biological process); PRP (Properties); SPN (Synthetic preparation); BIOL (Biological study); PREP (Preparation); PROC (Process)
(cysteine-contg., monoclonal antibody complexes with gold-immobilized; combination of Langmuir-Blodgett and **self-assembly** techniques for prepn. of patterns with contrasting surface properties on gold substrates for study of biochem. processes)

IT Antibodies
RL: BPR (Biological process); PRP (Properties); SPN (Synthetic preparation); BIOL (Biological study); PREP (Preparation); PROC (Process)
(monoclonal, bound to cysteine-bearing **peptides** on gold; combination of Langmuir-Blodgett and **self-assembly** techniques for prepn. of patterns with contrasting surface properties on gold substrates for study of biochem. processes)

IT Films
(ultrathin, combination of Langmuir-Blodgett and **self-assembly** techniques for prepn. of patterns with contrasting surface properties on gold substrates for study of biochem. processes at)

IT 7440-57-5P, Gold, biological studies
RL: BPR (Biological process); PRP (Properties); SPN (Synthetic preparation); BIOL (Biological study); PREP (Preparation); PROC (Process)
(combination of Langmuir-Blodgett and **self-assembly** techniques for prepn. of patterns with contrasting surface properties on gold substrates for study of biochem. processes)

IT 99684-86-3, NBD-PE
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(in gold-supported biochem. structures; combination of Langmuir-Blodgett and **self-assembly** techniques for prepn. of patterns with contrasting surface properties on gold substrates for study of biochem. processes)

IT 57-10-3P, Palmitic acid, biological studies 7534-35-2P, 1-Thio-.beta.-D-glucose 26853-31-6P, POPC 129787-62-8P, 21-Mercaptoheneicosanol 151863-20-6P 159085-94-6P

RL: BPR (Biological process); PRP (Properties); SPN (Synthetic preparation); BIOL (Biological study); PREP (Preparation); PROC (Process)
(in gold-supported biochem. structures; combination of Langmuir-Blodgett and **self-assembly** techniques for prepn. of patterns with contrasting surface properties on gold substrates for study of biochem. processes)

L17 ANSWER 11 OF 16 HCAPLUS COPYRIGHT 1998 ACS
AN 1994:107722 HCAPLUS
DN 120:107722
TI **Self-assembling** organic nanotubes based on a cyclic **peptide** architecture
AU Ghadiri, M. Reza; Granja, Juan R.; Milligan, Ronald A.; McRee, Duncan E.; Khazanovich, Nina
CS Dep. Chem., Scripps Res. Inst., La Jolla, CA, 92307, USA
SO Nature (London) (1993), 366(6453), 324-7
CODEN: NATUAS; ISSN: 0028-0836
DT Journal
LA English
AB The design, synthesis, and characterization of a new class of org. nanotubes based on rationally designed cyclic peptides, e.g. cyclo(D-Ala-Glu-D-Ala-Gln-D-Ala-Glu-D-Ala-Gln), is reported. When protonated, the cyclopeptides crystallize into tubular structures hundreds of nanometers long, with internal diams. of 7-8.ANG.. **Support** for the proposed tubular structures is provided by electron microscopy, electron diffraction, Fourier-transform IR, and mol. modeling. The tubes are open-ended, with uniform shape and internal diam. It is anticipated that the may have possible applications in inclusion chem., catalysis, mol. electronics, and mol. sepn. technol.
CC 34-3 (Amino Acids, Peptides, and Proteins)
IT **Peptides**, preparation
RL: SPN (Synthetic preparation); PREP (Preparation)
(cyclo-, prepn. and **self-assembling** nanotube formation on protonation of)

L17 ANSWER 12 OF 16 HCAPLUS COPYRIGHT 1998 ACS
AN 1993:644866 HCAPLUS
DN 119:244866
TI Electrophilic siloxane-based **self-assembled monolayers** for thiol-mediated anchoring of **peptides** and proteins
AU Lee, Yong Woo; Reed-Mundell, Joseph; Zull, James E.; Sukenik, Chaim N.
CS Dep. Chem., Case West. Reserve Univ., Cleveland, OH, 44106, USA
SO Langmuir (1993), 9(11), 3009-14
CODEN: LANGD5; ISSN: 0743-7463
DT Journal
LA English
OS CJACS-IMAGE; CJACS
AB The synthesis and characterization of long-chain alkyltrichlorosilanes of alkyl halides, benzyl halides, and .alpha.-haloacetyls designed to form siloxane-anchored self-assembled monolayers (SAMs) for the selective attachment of peptides (via cysteine thiols) is described. Thin film formation by the trichlorosilanes was demonstrated by spectroscopic means and by

surface wetting properties. Halide exchange could be utilized to produce the more reactive (iodide) surfaces in situ, following their deposition in a more stable (chloride or bromide) form. In soln., these functional groups were found to have a range of reactivity with model thiols which extended from half-lives of minutes to days (essentially no reactivity). The order of reactivity is I > Br > Cl within each class of compds., and .alpha.-haloacetyl > benzyl .mchgt. alkyl. The reactivity of the SAMs with thiols showed the same order of reactivity. The very reactive .alpha.-iodoacetyl was also reactive with amines, but competition expts. demonstrated preference for the thiol under the authors' reaction conditions. SAM reactivity with cysteine-contg. peptides was demonstrated with a tripeptide (glutathione) and a nonapeptide (laminin fragment). Both peptides show max. attachment after 2-3 h of exposure to millimolar concns. The attachment was completely blocked by prior treatment of these peptides with dinitrophenylmaleimide or by air oxidn. of the thiol. Given that these peptides contain all the nucleophilic side chains found in proteins (thiol, alc., phenol, carboxyl, and amine), the selective blocking expts. indicate that these SAMs will be useful for the directed attachment through cysteine side chains in proteins and peptides.

CC 9-14 (Biochemical Methods)
Section cross-reference(s): 34

ST siloxane **monolayer** thiol anchor **peptide** protein; **self assembled monolayer** protein immobilization

IT **Peptides**, reactions
Proteins, reactions
RL: RCT (Reactant)
(immobilization of, thiol-mediated, on siloxane-based **self-assembled monolayers**)

IT Immobilization, biochemical
(of **peptides** and proteins, on electrophilic siloxane-based **self-assembled monolayers**)

IT Mercapto group
(**peptide** and protein immobilization on siloxane-based **self-assembled monolayers** mediation by)

IT **Glass**, oxide
RL: ANST (Analytical study)
(siloxane-based **self-assembled monolayers** on, for anchoring of **peptides** and proteins)

IT Films
(unimol., **self-assembled**, electrophilic siloxane-based, for thiol-mediated anchoring of **peptides** and proteins)

IT 7440-21-3, Silicon, uses
RL: USES (Uses)
(siloxane-based **self-assembled monolayers** on, for anchoring of **peptides** and proteins)

L17 ANSWER 13 OF 16 HCAPLUS COPYRIGHT 1998 ACS
AN 1992:488181 HCAPLUS
DN 117:88181

TI Design and synthesis of a **self-assembling peptide** derived from the envelope proteins of HIV type 1. An approach to heterovalent immunogens
AU Tripathy, Srikanth P.; Kumar, Anil; Manivel, Venkatasamy; Panda, Subrat K.; Rao, Kanury V. S.
CS AIDS Unit, Natl. Inst. Virol., Pune, India
SO J. Immunol. (1992), 148(12), 4012-20
CODEN: JOIMA3; ISSN: 0022-1767
DT Journal
LA English
AB A chimeric peptide that included sequences from gp120 and gp41 of HIV type 1 was synthesized. Cleavage from solid **support** yielded a composite of self-oligomerized products with mol. masses ranging from 5 to about 9 kDa. The oligomer but not its reduced, monomeric form was recognized by human anti-HIV sera and at least 1 of the 2 lysines in the sequence was involved in antibody binding. The oligomeric peptide was immunogenic, yielding a conformation-specific antibody response. Co-oligomerization of a hepatitis B surface antigen-derived peptide and the HIV type 1-derived peptide yielded a bivalent product in which conformational integrity of the individual components was maintained. Immunization with this hybrid peptide resulted in conformation-specific antibodies to both epitopes in all 4 murine strains tested. Lymphocyte proliferation assays revealed that the T epitopes resident in both peptide sequences remained active in the hybrid peptide. These results demonstrate the potential of this approach in generating multi- and heterovalent immunogens which may eventually find application as vaccines.
CC 15-2 (Immunochemistry)

L17 ANSWER 14 OF 16 HCAPLUS COPYRIGHT 1998 ACS
AN 1992:250729 HCAPLUS
DN 116:250729
TI Elastin **peptides**: mechanisms of **self-assembly** and specific interaction with **metal** ions
AU Okamoto, Kouji; Uemura, Yuko; Kawata, Satoshi; Kaibara, Kozue; Miyakawa, Kenji; Yamamoto, Shintaro; Kondo, Michio
CS Dep. Biochem. Eng. Sci., Kyushu Inst. Technol., Iizuka, 820, Japan
SO Pept. Chem. (1992), Volume Date 1991, 29th, 163-8
CODEN: PECHDP; ISSN: 0388-3698
DT Journal
LA English
AB The physicochem. process of self-assembly of .alpha.-elastin in aq. soln. is investigated by means of light scattering techniques and the specific interaction of the polypentapeptide with metal ions are detd. by the use of NMR techniques.
CC 6-3 (General Biochemistry)
ST elastin alpha assembly **metal** ion interaction
IT Elastins
RL: BIOL (Biological study)
(.alpha.-, self-assembly mechanism of and **metal** ions interactions with)

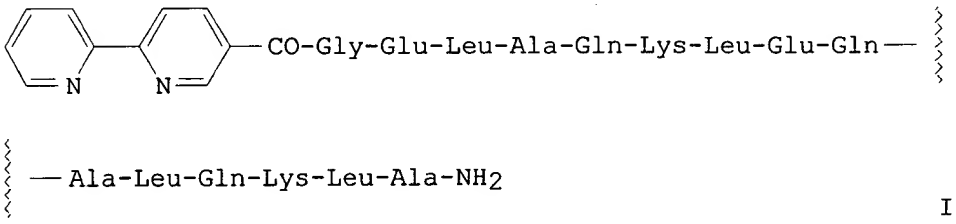
L17 ANSWER 15 OF 16 HCAPLUS COPYRIGHT 1998 ACS
AN 1992:59961 HCAPLUS
DN 116:59961
TI A convergent approach to protein design. **Metal**

ion-assisted spontaneous **self-assembly** of a **polypeptide** into a triple-helix bundle protein

AU Ghadiri, M. Reza; Soares, Christopher; Choi, Chong
CS Dep. Chem. Mol. Biol., Res. Inst. Scripps Clin., La Jolla, CA, 92037, USA

SO J. Am. Chem. Soc. (1992), 114(3), 825-31
CODEN: JACSAT; ISSN: 0002-7863
DT Journal
LA English
OS CASREACT 116:59961; CJACS-IMAGE; CJACS

GI



I

AB A novel metal ion-assisted self-organizing mol. process is described by which a small peptide has been assembled into a large and topol. predetd. protein tertiary structure. The intrinsic binding energy of a metal ion coordination complex as well as the stringent geometrical requirements present for a strong metal ion-ligand interaction has been exploited to control the oligomeric state as well as the relative orientation of peptide subunits participating in an intermol. assembly process. Peptide I, a 15-residue amphiphilic peptide with a 2,2'-bipyridine functionality at the N-terminus, was designed and shown to undergo spontaneous self-assembly, in the presence of transition metal ions, to form a 45-residue triple-helical coiled-coil metalloprotein.

CC 34-3 (Amino Acids, Peptides, and Proteins)
Section cross-reference(s): 6

ST triple helix bundle protein; **metal** spontaneous assembly peptide protein

IT **Metals**, uses
RL: USES (Uses)
(spontaneous **self-assembly** of **peptides** into triple-helix bundle protein in presence of)

IT **Peptides**, properties
RL: PRP (Properties)
(spontaneous **self-assembly** of, into triple-helix bundle proteins in presence of **metal** ions)

IT Proteins, preparation
RL: PREP (Preparation)
(triple-helix bundle, formation of, by **metal** ion-assisted spontaneous **self-assembly** of **peptides**)

IT Conformation and Conformers
(triple-helix, of proteins from **metal** ion-assisted spontaneous **self-assembly** of **peptides**
)

IT Molecular association
(self-, spontaneous, of peptides into triple-helix bundle proteins in presence of **metal** ions)

L17 ANSWER 16 OF 16 HCAPLUS COPYRIGHT 1998 ACS
AN 1991:558801 HCAPLUS
DN 115:158801
TI **Self-assembly** of porphyrins on nucleic acids and **polypeptides**
AU Pasternack, Robert F.; Giannetto, Antonino; Pagano, Pamela; Gibbs, Esther J.
CS Dep. Chem., Swarthmore Coll., Swarthmore, PA, 19081, USA
SO J. Am. Chem. Soc. (1991), 113(20), 7799-800
CODEN: JACSAT; ISSN: 0002-7863
DT Journal
LA English
OS CJACS
AB Both the free base porphyrin trans-bis(N-methylpyridinium-4-yl)diphenylporphine (trans-H2Pagg) and its copper (II) deriv. form extended assemblies on calf thymus DNA under appropriate conditions. These assemblies have characteristic large, conservative induced CD signals in the Soret region. In contrast, Au(III)Pagg remains monodispersed and intercalated under similar conditions of concn. and ionic strength. Aggregates, giving similar spectroscopic signatures, can also be formed on polypeptide templates.
CC 26-7 (Biomolecules and Their Synthetic Analogs)
Section cross-reference(s): 33, 34, 72
ST porphyrin selfassembly nucleic acid polypeptide **support**; CD porphyrin nucleic acid polypeptide complex
IT Molecular association
(**self-assembly** of porphyrins on DNA and **polypeptides**, CD spectra of)
IT Porphyrins
RL: RCT (Reactant)
(**self-assembly** of, on DNA and **polypeptides**, CD spectrum in relation to)
IT **Peptides**, uses and miscellaneous
RL: USES (Uses)
(template for porphyrin **self-assembly**)
IT 135972-57-5
RL: RCT (Reactant)
(attempted **self-assembly** of, on DNA and **polypeptides**)

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SEARCH ENDED BY USER

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                DEL HIS Y
L1           335 S SELF ASSEMB?
L2         26427 S PEPTIDE# OR POLYPEPTIDE# OR OLIGOPEPTIDE#
L3            28 S L1 (L) L2
L4         76129 S L2 OR PROTEIN#
L5            51 S L1 (L) L4
L6        215260 S MONOLAYER# OR MONO LAYER# OR CELL#
L7            26 S L5 AND L6
L8       1771783 S SUPPORT# OR METAL# OR GLASS? OR SILICA OR SILICON?
L9        376934 S GOLD OR COPPPER OR NICKEL OR ZINC OR SILVER OR AU OR CU
L10       422340 S L9 OR COPPER
L11            4 S L7 AND(L8 OR L10)
L12           51 S L1 AND L4
L13           13 S L5 AND (L8 OR L10)
L14           13 S L13 OR L11

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     (FILE 'WPIDS' ENTERED AT 12:10:27 ON 23 APR 1998)
L15            4 S L5 AND PATTERN?
L16            1 S L15 NOT L14

=> d .wp 1-13 l14


L14  ANSWER 1 OF 13  WPIDS   COPYRIGHT 1998 DERWENT INFORMATION LTD
AN   97-479506 [44]   WPIDS
DNC  C97-152265
TI   Membranes formed by self-assembly of amphiphilic
     peptide(s) - useful as bio material(s), separation matrices,
     drug delivery vehicles, etc..
DC   B04 B07 D16 D22 J01
IN   HOLMES, T; LOCKSHIN, C; RICH, A; ZHANG, S
PA   (MASI) MASSACHUSETTS INST TECHNOLOGY
CYC  1
PI   US 5670483  A  970923 (9744)*      49 pp
ADT  US 5670483 A Cont of US 92-973326 921228, US 94-346849 941130
PRAI US 92-973326   921228; US 94-346849   941130
AB   US 5670483 A   UPAB: 971105
     A novel macroscopic membrane is formed by self-
     assembly of amphiphilic peptides in an aqueous
     medium containing monovalent metal cations is claimed,
     where the peptides contain 12 or more amino acids, have
     alternating hydrophobic and hydrophilic amino acids and are
     complementary and structurally compatible.
```

USE - As the macroscopic membranes are stable in serum, resistant to proteolytic digestion and alkaline and acidic pH, and are non-cytotoxic, they are potentially useful in biomaterial applications, such as medical products (e.g. sutures), or internal linings. Due to their permeability, the membranes are potentially useful as slow-diffusion drug delivery vehicles for **protein** -type drugs, including erythropoietin, tissue-type plasminogen activator, synthetic haemoglobin and insulin. They can be used in numerous applications in which permeable and water-insoluble materials are appropriate, such as separation matrices (e.g., dialysis membranes, chromatographic columns). The extremely small pore size (interfilament distance) of the membranes makes them useful as filters, e.g., to remove virus and other microscopic contaminants. Collagen may be combined with the **peptides** to produce membranes more suitable for use as artificial skin, here the collagen may be stabilised from proteolytic digestion within the membrane. The membranes may also be useful for culturing **cell monolayers**. The membranes may be useful for making very thin, transparent fabric. The formation of the macroscopic membranes may provide a useful model system for investigating the properties of biological **proteins** structures with such unusual properties as extreme insolubility and resistance to proteolytic digestion. The model systems can be used to study the pathology and potential treatment of conditions characterised by the presence of these **proteins**. Drugs which inhibit the **self assembly** of membrane forming **peptides** into filaments or filamentous membranes can be identified, which may be useful for treating Alzheimer' s disease or scrapie infection. The **peptides** may be useful in origin of life studies related to **cell** membranes and cellular compartmentalisation.

ADVANTAGE - The membranes can be made and stored in a sterile condition. The also have a simple composition and can be easily and relatively inexpensively produced in large quantities. As they are resistant to degradation by proteases and stomach acid (pH 1.5), drug delivery vehicles made of these membranes could be taken orally. The drug could be wrapped in layers of membrane, which would permit slow release of the drug and may extend the half-life of the drug in the bloodstream. The charged residues and conformation of the proteinaceous membranes are likely to promote **cell** adhesion and migration. The charged residues and conformation of the proteinaceous membranes promote **cell** adhesion and migration. In addition, the permeability of the membranes would permit diffusion of small molecules, to the underside of **cell monolayers**, presenting the potential for tissue culture of differentiated **cells** and/or stratified **cell** layers.

Dwg.0/11

L14 ANSWER 2 OF 13 WPIDS COPYRIGHT 1998 DERWENT INFORMATION LTD
AN 97-426446 [40] WPIDS
DNN N97-354913 DNC C97-136609
TI Membrane bio-sensor supported by a solid state device - with spacers containing oligopeptide.
DC B04 D16 J04 S03
IN GALLA, H; REIHS, K; STEINEM, C
PA (FARB) BAYER AG

CYC 6
PI DE 19607279 A1 970828 (9740)* 10 pp
EP 793095 A1 970903 (9740) DE 11 pp
R: CH DE FR GB LI
JP 09236571 A 970909 (9746) 8 pp
ADT DE 19607279 A1 DE 96-19607279 960227; EP 793095 A1 EP 97-102367 970214; JP 09236571 A JP 97-54258 970224
PRAI DE 96-19607279 960227
AB DE19607279 A UPAB: 971006
Sensor consists of a solid state device A as carrier, a lipid double layer B as membrane with a spacer fitted between them and a receptor D embedded in the lipid double layer. On its side facing D A consists of a non-corrosive material with a tapping for an electrical signal whilst 1-40% of all lipid molecules of the lower layer of B consists of Di(C8-C30-acyl)-phosphatidyl compounds with a naturally occurring head group and 60-99% of a Di-(C8-C30-acyl)-phosphatide with the head group replaced by the spacer C.
100% of the upper layer of B consists of Di-(C8-C30-acyl)-phosphatidyl compounds with a naturally occurring head group all acyl groups of a layer are essentially of the same length whilst those of the lower layer are equal to or difference in length from those of the upper. The spacers consist of 1 molecule ethanolamine which forms an ester bonding to the phosphate group of B, an **oligopeptide** in helix or folded leaf structure of 4-20 C2-C10-alpha-amino acids and an anchor group which forms a chemical or physical-chemical bond with A all C spacers of the biosensor being equal and D has no contact with A.
USE/ADVANTAGE - In **self assembly** method.
Removes restriction on use and consistency of results.
Dwg.1/4

L14 ANSWER 3 OF 13 WPIDS COPYRIGHT 1998 DERWENT INFORMATION LTD
AN 97-288174 [26] WPIDS
CR 91-117618 [16]; 91-117625 [16]; 92-300174 [36]; 92-300183 [36]; 92-349359 [42]; 94-065810 [08]; 96-010090 [01]; 96-076885 [08]; 96-361950 [36]; 97-340536 [30]
DNN N97-238681 DNC C97-092690
TI Optical assay device - detects presence of an analyte by colour change in optically active layer.
DC B04 D16 S03
IN CROSBY, M
PA (BIOS-N) BIOSTAR INC
CYC 1
PI US 5629214 A 970513 (9726)* 70 pp
ADT US 5629214 A CIP of US 89-408291 890918, CIP of US 92-873097 920424, CIP of US 92-924343 920731, Div ex US 93-75952 930610, US 95-456040 950531
FDT US 5629214 A Div ex US 5541057
PRAI US 93-75952 930610; US 89-408291 890918; US 92-873097 920424; US 92-924343 920731; US 95-456040 950531
AB US 5629214 A UPAB: 970806
Optical assay device for detecting quantitatively or qualitatively an analyte of interest comprises: (1) a substrate supporting an optically active layer comprising an optical thin film, (2) an attachment layer provided on the optically active layer, where the attachment layer is a material selected from dendrimers, star polymers, molecular **self-assembling** polymers,

polymeric siloxanes, and film forming latexes, (3) a receptive layer specific for the analyte provided on the attachment layer. The method comprises:(1) forming the optical thin film with a chosen refractive index on the substrate by curing the optical thin film on the substrate either at a controlled temperature or for a controlled time such that the optically active layer in conjunction with the attachment and receptive layers exhibits a first colour in response to light and a second colour comprising a combination of wavelengths different from the first colour, or having at least 1 wavelength with an intensity different from the first colour in response to the light from the analyte on the receptive layer, and (2) subsequently providing the attachment and receptive layers on the optically active layer. Also claimed are (1) a method for forming a device for use in an optical assay for an analyte comprising: a multilayered substrate comprising a layer of base material, a conducting **metal** layer on the layer of base material comprising aluminium, chromium or a transparent conducting oxide, a layer of amorphous **silicon** on the conducting **metal** layer, an anti-reflective layer on the layer of amorphous **silicon** , an attachment layer on the anti-reflective layer, where the attachment layer comprises a material selected from dendrimers, star polymers, molecular **self-assembling** polymers, polymeric siloxanes, and film forming latexes, and a receptive layer specific for the analyte on the attachment layer, the method comprising the steps of: providing the layers of conducting **metal** and amorphous **silicon** on the layer of base material, forming the anti-reflective layer with a chosen refractive index on the layer of amorphous **silicon** by curing the anti-reflective layer at a controlled temperature or for a controlled time, and subsequently providing the attachment and receptive layers on the anti-reflective layer; (2) a method for forming a device for use in an optical assay for an analyte comprising: a multi-layered substrate comprising a layer of base material, a layer of amorphous **silicon** on the layer of base material, and an anti-reflective layer on the layer of amorphous **silicon**, an attachment layer on the anti-reflective layer, where the attachment layer comprises a material selected from dendrimers, star polymers, molecular **self-assembling** polymers, polymeric siloxanes, and film forming latexes, and a receptive layer specific for the analyte on the attachment layer, the method comprising the step of: forming the anti-reflective layer with a chosen refractive index on the layer of amorphous **silicon** by curing the anti-reflective layer at a controlled temperature or for a controlled time, and subsequently providing the attachment and receptive layers on the anti-reflective layer; (3) a method for forming an optical assay device for an analyte comprising: a substrate selected from **glass**, plastic, **silicon** and amorphous **silicon**, an anti-reflective layer on the substrate selected from **silicon** nitride, composite of **silicon**/ **silicon** dioxide, titanates, **silicon** carbide, diamond, cadmium sulphide and titanium dioxide, an attachment layer on the anti-reflective layer selected from a polymeric silane, siloxane. film forming latex and a dendrimer, and a specific binding layer for the analyte on the attachment layer,the anti-reflective layer comprising an optical thin film, the method comprising the step of: forming the optical thin film on the substrate with a

chosen refractive index by curing the optical thin film on the substrate at a controlled temperature or for a controlled time, and subsequently providing the attachment and receptive layers on the optical thin film.

USE -The optical assay device is used for determination of rheumatoid factor, antibodies, carcinoembryonic antigen, bacterial and viral antigens, antigens associated with autoimmune disease, allergens, tumours, infectious microorganisms, antibodies, enzymes, hormones, polysaccharides, **proteins**, lipids, carbohydrates, drugs and nucleic acids.

Dwg.0/18

L14 ANSWER 4 OF 13 WPIDS COPYRIGHT 1998 DERWENT INFORMATION LTD
AN 97-108244 [10] WPIDS
CR 96-286288 [29]
DNC C97-034453
TI Formation of synthetic protein crystals in carrier fluid - using dipole moments of protein macro-mols. that self-align in Helmholz layer adjacent electrode.
DC B04 D16 J04 S03 S05
IN CRAIG, G D; GLASS, R; RUPP, B
PA (REGC) UNIV CALIFORNIA
CYC 1
PI US 5597457 A 970128 (9710)* 9 pp
ADT US 5597457 A CIP of US 95-376612 950123, US 96-630711 960408
FDT US 5597457 A CIP of US 5525198
PRAI US 96-630711 960408; US 95-376612 950123
AB US 5597457 A UPAB: 970307

Determn. of the conformational structure of a **protein** sample comprises applying a voltage between 2 electrodes (14,16) that interface with a liq. and **protein** macro-mol. mixt. (20). The voltage is maintained to promote formation of the macro-mols. into pearl chains and synthesized 3-dimensional **protein** crystals. The synthesised crystals are screened by X-ray crystallography to determine the conformational structure of the basic **protein**.

Also claimed are:

(a) a method for **protein** crystallography which comprises:

(i) diagnosing electric fields in a double layer of an electrode-fluid interface using electrochemistry techniques;

(ii) seeding this layer with polymer macro-mols. and demonstrating that a complex fluid at the interface solidifies under the action of the electric field;

(iii) using electron microscopy to examine a registry of macro-mols.;

(iv) repeating the steps of seeding and using electron microscopy with a globular **protein**;

(v) using x-ray scattering to see if the diffraction pattern of the globular **proteins** can be deconvolved to Angstrom resolution by computational modelling, and

(vi) comparing the resulting conformation with a pre-existing **protein** database, and

(b) a method for creating diffraction-quality **protein** crystals on a microchip suitable for X-ray and electron diffraction studies, which comprises:

(i) suspending **protein** macro-mols., each with a

dipole moment, in a liq. soln. that is disposed within a micron-sized gap between 2 micro-electrodes on a **silicon** substrate;

(ii) applying a voltage across 2 micro-electrodes such that the **protein** macro-mols. are aligned by the effects of an electric field in the electric double layer on permanent and induced dipole moments, and

(iii) electromechanical erecting at least 1 2-dimensional seed matrix providing for subsequent **self-assembly** of at least 1 3-dimensional **protein** crystal.

USE - Diffraction-quality **protein** crystals are produced which are useful in the rational design of drugs and vaccines for diseases such as AIDS and for research into inherited disorders, e.g. cystic fibrosis.

ADVANTAGE - The **protein** crystals can be made more rapidly than using prior art techniques and the method can be applied to a range of **proteins** that far exceeds that of conventional methods. The synthetic crystals exist at room temp. provided there is an applied voltage. They may be cryo-frozen, have the voltage removed and then be cryo-stored.

Dwg.1/2

L14 ANSWER 5 OF 13 WPIDS COPYRIGHT 1998 DERWENT INFORMATION LTD
AN 96-200999 [20] WPIDS
DNN N96-168616 DNC C96-063548
TI Attaching bilayer lipid membrane to sensor surface - by covalent reaction with self-assembled **monolayer** to improve stability, used to study interaction of biologically active membrane components.
DC B04 J04 S03
IN LOEFAS, S
PA (BIAC-N) BIACORE AB; (PHAA) PHARMACIA BIOSENSOR AB
CYC 19
PI WO 9610178 A1 960404 (9620)* EN 20 pp
RW: AT BE CH DE DK ES FR GB GR IE IT LU MC NL PT SE
W: JP US
EP 784793 A1 970723 (9734) EN
R: CH DE DK FR GB IT LI NL PT SE
ADT WO 9610178 A1 WO 95-SE1099 950926; EP 784793 A1 EP 95-933696 950926, WO 95-SE1099 950926
FDT EP 784793 A1 Based on WO 9610178
PRAI SE 94-3245 940926
AB WO 9610178 A UPAB: 960520

Prodn. of a substrate surface (SS) supporting a continuous, planar, bilayer lipid membrane (A) comprises fusing a micellar or vesicle prepn. (pref. contg. a membrane **protein** or biologically active membrane-bound component) to SS supporting a **self-assembled monolayer** (SAM) of essentially straight long-chain molecules (I). The new feature is that (I) contains functional gps. to which the micellar/vesicle prepn. is covalently bound.

USE - The surface is used in biosensors, i.e. to study interactions or the membrane-bound component by surface sensing techniques (esp. mass sensing or partic. optical methods based on evanescent wave sensing, e.g. surface plasmon resonance (SPR)). Partic. studies are carried out in the same vessel as used to prepare the sensor surface.

ADVANTAGE - Covalent attachment of (A) improves stability in presence of buffers and regeneration solns.. Also it becomes possible to control the fraction of the surface covered by (A) and to create a reproducible surface while avoiding any regions of bone **metal** (which are hydrophobic and may cause non-specific adsorption).
Dwg.1/3

L14 ANSWER 6 OF 13 WPIDS COPYRIGHT 1998 DERWENT INFORMATION LTD
AN 96-000013 [01] WPIDS
DNC C96-000030
TI Promoting differentiation of epithelial **cells** - by culturing undifferentiated **cells** on a dried native fibrillar collagen **cell** culture substrate.
DC B04 D16
IN MANNUZZA, F J; SWIDEREK, M S
PA (BECT) BECTON DICKINSON CO
CYC 11
PI AU 9516442 A 951102 (9601)* 37 pp
EP 684309 A1 951129 (9601) EN 19 pp
R: BE DE FR GB IT NL SE
CA 2146946 A 951026 (9610)
JP 08038165 A 960213 (9616) 13 pp
SG 33350 A1 961018 (9649)
AU 686738 B 980212 (9814)
ADT AU 9516442 A AU 95-16442 950412; EP 684309 A1 EP 95-105610 950413; CA 2146946 A CA 95-2146946 950412; JP 08038165 A JP 95-98730 950424; SG 33350 A1 SG 95-327 950425; AU 686738 B AU 95-16442 950412
FDT AU 686738 B Previous Publ. AU 9516442
PRAI US 94-233028 940425
AB **AU 9516442A**UPAB: 960108
The following are claimed: (A) a method for promoting expression of differentiated functions in epithelial **cells** (ECs) in vitro comprising culturing undifferentiated ECs on a dried native fibrillar collagen **cell** culture substrate for **cell** growth and maintaining the culture for a period sufficient to allow differentiation of the ECs; (B) a method for making a dried substrate comprising a **self-assembling protein** (SAP) in active form, comprising: (a) preparing the SAP in a liq. soln.; (b) polymerising the SAP on an upper side of a porous surface in the presence of 0.15-1M salt; (c) removing entrapped liq. from the polymerised SAP through the underside of the porous surface, and (d) drying the polymerised SAP on the porous surface; (C) a dried film of native fibrillar collagen produced by: (a) preparing solubilised collagen in a liq. soln.; (b) polymerising the collagen on an upper side of a porous surface in the presence of 0.15-1M salt to form a collagen gel; (c) collapsing the gel by removing entrapped liq. through the underside of the porous surface, and (d) drying the collapsed gel to form a film on the porous surface; (D) a kit for promoting development of differentiated function in cultured ECs, comprising: (a) a **cell** culture medium for growth of Ecs; (b) a dried collagen film comprising organised native collagen fibres on a porous surface, the fibres exhibiting the striations characteristic of collagen fibrils in vivo, and (c) opt. a differentiating inducing agent comprising 4-20 mM butyric acid.
USE - The cultured differentiated ECs can be used for e.g.

transport, infection or metabolic studies.
ADVANTAGE - The native fibrillar collagen films promote the growth and differentiation of ECs, thereby reducing the time required to achieve expression of differentiated functions in ECs. In addn., this effect is synergistically enhanced by addn. of butyric acid to the **cell** culture.
Dwg.0/7

L14 ANSWER 7 OF 13 WPIDS COPYRIGHT 1998 DERWENT INFORMATION LTD
AN 95-231579 [30] WPIDS
DNC C95-106929
TI Nucleotide directed assembly of molecules - using synthetic hetero-polymer(s) and multivalent hetero-polymeric hybrid structures to produce bi- and multi-molecular drugs and devices.
DC B04 D16
IN CUBICCIOTTI, R S
PA (CUBI-I) CUBICCIOTTI R S
CYC 60
PI WO 9516788 A1 950622 (9530)* EN 60 pp
RW: AT BE CH DE DK ES FR GB GR IE IT KE LU MC MW NL OA PT SD SE SZ
W: AM AU BB BG BR BY CA CN CZ EE FI GE HU JP KG KP KR KZ LK LR LT LU LV MD MG MN NO NZ PL RO RU SI SK TJ TT UA UZ VN
AU 9513736 A 950703 (9542)
EP 736103 A1 961009 (9645) EN
R: AT BE CH DE DK ES FR GB GR IE IT LI LU MC NL PT SE
JP 09506629 W 970630 (9736) 55 pp
US 5656739 A 970812 (9738) 16 pp
ADT WO 9516788 A1 WO 94-US14575 941215; AU 9513736 A AU 95-13736 941215; EP 736103 A1 WO 94-US14575 941215, EP 95-904932 941215; JP 09506629 W WO 94-US14575 941215, JP 95-516992 941215; US 5656739 A Div ex US 93-169517 931217, US 95-487959 950607
FDT AU 9513736 A Based on WO 9516788; EP 736103 A1 Based on WO 9516788; JP 09506629 W Based on WO 9516788
PRAI US 93-169517 931217; US 95-487959 950607
AB WO 9516788 A UPAB: 950804
Prodn. methods (I) and (II) for a synthetic heteropolymer capable of assembling non-oligonucleotide mols. (NOMs) are new. Method (I) comprises: (a) identifying 2 NOMs capable of co-operating to carry out a selected function; (b) selecting defined sequence segments capable of specifically binding the identified NOMs; (c) selecting spacer nucleotide sequences capable of joining the defined segments so that they remain independently operative, and (d) synthesising a heteropolymer comprising the defined segments operatively joined by the spacer sequences. Method (II) comprises: (a) selecting defined sequence segments capable of specifically binding NOMs; (b) selecting defined sequences capable of hybridising; and (c) synthesising a heteropolymer comprising the segments defined in (a) and (b). Also claimed are: (1) a method for the prodn. of a synthetic heteropolymer capable of detecting a target sequence in a test sample, comprising: (a) selecting a 1st defined sequence segment capable of specifically binding a NOM; (b) selecting a 2nd defined sequence segment capable of specifically hybridising to a target sequence in a test sample; (c) synthesising a heteropolymer comprising the defined segments; (d) binding the NOM to the 1st defined sequence, so that the mol. will be displaced when the target sequence is bound at the 2nd defined segment; (e) contacting the

synthetic heteropolymer with the test sample; and (f) detecting the displaced NOM; (2) a method for producing a multivalent heteropolymeric hybrid structure capable of assembling NOMs, comprising: (a) identifying 2 NOMs capable of co-operating to carry out a selected function; (b) selecting 1st defined sequence segments capable of specifically binding the identified NOMs, each segment being capable of specifically binding with a different identified NOM; (c) selecting 2nd defined segments capable of hybridisation; (d) synthesising heteropolymers, each comprising a nucleotide sequence having at least one 1st and one 2nd defined segment; and (e) hybridising the synthetic heteropolymers at their respective 2nd defined segments to produce a multivalent hybrid structure; (3) a method for producing a multivalent heteropolymeric hybrid structure capable of assembling NOMs and oligonucleotides, comprising: (a) selecting at least 1st defined sequence segment capable of specifically binding a NOM; (b) selecting 2nd defined segments capable of hybridisation; (c) synthesising a 1st heteropolymer comprising the 1st and the 2nd defined segments; (d) selecting the 1st and 2nd sequence segments capable of hybridisation; (e) synthesising a 2nd heteropolymer comprising the 1st and the 2nd sequence segments capable of hybridisation; and (f) hybridising the 1st and 2nd synthetic heteropolymers at their respective 2nd defined segments to produce a multivalent hybrid structure; (4) a synthetic heteropolymer comprising nucleotides having at least a 1st and a 2nd defined sequence segment, the 1st segment being capable of binding an NOM having a selected activity, and the 2nd segment being capable of binding a 2nd, different NOM o a selected activity; (5) a synthetic heteropolymer comprising nucleotides having a 1st and a 2nd defined sequence segment, the 1st segment being capable of binding an NOM having a selected activity, and the 2nd segment being capable of hybridisation; (6) a multimolecular complex comprising the synthetic heteropolymer of (5) having a NOM specifically bound to the 1st defined sequence; (7) a multivalent heteropolymeric hybrid structure comprising at least two synthetic heteropolymers, each comprising at least a 1st and a 2nd being capable of hybridisation; (8) a multimolecular complex comprising the hybrid structure of (7) having a 1st NOM specifically bound to the 1st defined segment of the 1st synthetic heteropolymer of the hybrid structure; (9) a multivalent heteropolymeric hybrid structure comprising a 1st synthetic heteropolymer having at least a 1st and 2nd defined sequence segment, the 1st being capable of specifically binding to a NOM and the 2nd being capable of hybridisation, and a 2nd synthetic heteropolymer having at least two defined sequence segments capable of hybridisation; (10) an immobilised reagent comprising a solid **support** and either (i) a synthetic heteropolymer, (ii) a multivalent heteropolymeric hybrid structure, or (iii) a multimolecular complex, each capable of attaching to the solid **support**.

USE - The method and structures allow the coupling together of activities of two or more molecules or groups, to perform functions dependent on the spatial proximity of the constituent molecules. The potential utility enables or improves reactions and process that do not proceed efficiently when such molecules are either randomly distributed or ordered in bulk. They have specific application for diagnostics, therapeutics, bioprocessing, microelectronics, energy transduction, and generally in molecular manufacturing.

ADVANTAGE - The invention provides a means to reproducibly

engineer the assembly of limitless combinations of biological and non-biological molecules with substantial control over both the design and desired complexes. Prior art approaches to coax lipids and **proteins** into **self assembly** lacked this amt. of control.
Dwg.0/0

L14 ANSWER 8 OF 13 WPIDS COPYRIGHT 1998 DERWENT INFORMATION LTD
AN 93-351875 [44] WPIDS
DNN N93-271380 DNC C93-156242
TI Bi-layer lipid membrane sensor - having **gold** surface, an imperfect thio-lipid phospholipid layer and phospholipid layer.
DC B04 D16 J04 S03
IN KOENIG, B; LANG, H; VOGEL, H
PA (ECOL-N) ECOLE POLYTECHNIQUE FEDERALE LAUSANNE; (EUTE-N) EURO INST TECHNOLOGY
CYC 18
PI WO 9321528 A1 931028 (9344)* EN 31 pp
EP 637384 A1 950208 (9510) EN
JP 07508342 W 950914 (9545) 10 pp
EP 637384 B1 961002 (9644) EN 15 pp
R: AT BE CH DE DK ES FR GB GR IE IT LI LU MC NL PT SE
DE 69305160 E 961107 (9650)
ADT WO 9321528 A1 WO 93-EP976 930421; EP 637384 A1 EP 93-911493 930421, WO 93-EP976 930421; JP 07508342 W JP 93-518003 930421, WO 93-EP976 930421; EP 637384 B1 EP 93-911493 930421, WO 93-EP976 930421; DE 69305160 E DE 93-605160 930421, EP 93-911493 930421, WO 93-EP976 930421
FDT EP 637384 A1 Based on WO 9321528; JP 07508342 W Based on WO 9321528; EP 637384 B1 Based on WO 9321528; DE 69305160 E Based on EP 637384, Based on WO 9321528
PRAI EP 92-303592 920422
AB WO 9321528 A UPAB: 931213
A bilayer lipid membrane (BLM) sensor comprises (1) a **gold** recording surface, (2) a first lipid layer which is an imperfect layer of a thiolipid which comprises the residue of 2 phospholipid molecules linked to each end of a disulphide (-S-S-) gp., each through an oxyethylene (-O-CH2-CH2-) chain which is short enough to allow the thiolipid to become anchored to the **gold** surface by **self-assembly**, but long enough to trap an aqs. layer between the **gold** surface and the bottom of the thiolipid layer, the thiolipid being attached to the **gold** surface and the imperfect layer being completed by a phospholipid which provides an unattached fluid phase at room temp., and (3) a second lipid layer of phospholipid. The thiolipid is pref. of formula (I). (m,n = 1-5; R1,R2 = residues of phospholipid molecules). The phospholipid used to complete the imperfect layer is pref. a mixt. of 1,2-dimyristoyl-sn- glycero-3-phosphocholine (DMPC) and 1-palmitoyl-2-oleoyl-sn-glycero-3 -phosphocholine (POPC).
USE/ADVANTAGE - The first lipid layer provides a stable anchorage of a flexible layer which traps a layer of water which enables **proteins** which extend beyond the membrane to adopt a configuration which more closely conforms to that found in nature and enables them to respond to the binding of a ligand in a correspondingly natural fashion. The sensors are partic. useful in the evaluation of the activity of pharmacological agents as agonists or antagonists for a biosensitive receptor **protein** such as

5-HT3 (serotonin) receptor.
Dwg.0/1

L14 ANSWER 9 OF 13 WPIDS COPYRIGHT 1998 DERWENT INFORMATION LTD
AN 93-330109 [42] WPIDS
DNN N93-254908 DNC C93-145843
TI Biomolecular switch for data processing or bio-sensing - uses biological macromolecules capable of existing in two states with input to convert the state and output which monitors the state.
DC B04 D16 J04 L03 P81
IN CASS, A; WATSUJI, T
PA (SHAF) SHARP KK
CYC 2
PI GB 2266182 A 931020 (9342)* 47 pp
JP 06163876 A 940610 (9428) 14 pp
GB 2266182 B 960828 (9638)
ADT GB 2266182 A GB 93-6687 930331; JP 06163876 A JP 93-74845 930331; GB 2266182 B GB 93-6687 930331
PRAI GB 92-7086 920331
AB GB 2266182 A UPAB: 931202
Biomolecular switch comprises an array of biological macromolecules immobilised on a **support**, each macromolecule being capable of existing in two states between which it may be reversibly switched. A stimulus applied to an input device selectively converts at least some macromolecules from a stimulus free to a stimulus dependent state and an output device measures or monitors the changes in state of the macromolecules.

Pref. macromolecules can be **proteins**, nucleic acids or polysaccharides. The input device can be electrical or electromechanical and can modulate the pH, temperature ionic strength and/or liquid concentration in the microenvironment of the macromolecules, particularly to establish a ligand or pH concentration gradient across the array; and the output device measures the relative populations of the states, particularly a pattern of macromolecular responses which reflects the change in pattern of applied stimulus, e.g. by monitoring the change in state of the macromolecules by nuclear magnetic resonance, infrared spectroscopy, UV differential spectroscopy, fluorescence, chemiluminescence or bioluminescence.

USE/ADVANTAGE - In data aquisition and/or processing devices or as a biosensor. Biological macromolecules are relatively cheap, have high thermodynamic efficiency and **self assembly** properties, with a potential for very high packing density and the development of non-von-Neumann architectures.
Dwg.7/16

L14 ANSWER 10 OF 13 WPIDS COPYRIGHT 1998 DERWENT INFORMATION LTD
AN 91-044906 [07] WPIDS
DNN N91-034947 DNC C91-019046
TI Polymeric nucleic acid to produce electronic networks - partic. for use as masks for photolithographic chip prodn. or to make switching elements.
DC D16 L03 P84 U11 U12
IN HOLLENBERG, C P; MAURO, E; DIMAURO, E; DI, MAURO E
PA (HOLL-I) HOLLENBERG C P; (DIMA-I) DIMAURO E; (DMAU-I) DI MAURO E
CYC 3
PI DE 3924454 A 910207 (9107)*

JP 03142882 A 910618 (9130)
DE 3924454 C 920227 (9209)
EP 491059 A1 920624 (9226)# EN 11 pp
US 5561071 A 961001 (9645) 9 pp
ADT DE 3924454 A DE 89-3924454 890724; JP 03142882 A JP 90-196050 900724; US 5561071 A Cont of US 90-552938 900716, Cont of US 93-22615 930219, Cont of US 93-116556 930907, US 95-532542 950925
PRAI DE 89-3924454 890724
AB DE 3924454 A UPAB: 930928
The use of polymeric double- or single-stranded nucleic acid (A) to construct or produce electronic networks (DNA chips) is new.

Pref. (A) is RNA and/or DNA, and have (1) a specific orientation; (2) specific single-stranded regions, defined by position, length and sequence compsn.; (3) multiple branching points and (4) specific sites.

Pref. (A) can be complexed with ligands (e.g. **metal** ions, intercalating agents or **proteins**) as electrical ligands. Preformed elements are used for particular parts of the network and are incorporated by specific hybridisation at specific binding points. A matrix of foundation of DNA; DNA/**protein** ; DNA/RNA or DNA/RNA/**protein** may include other materials such as GaAs (opt. n-doped). USE/ADVANTAGE - (A), or their complexes, are useful as masks (or to construct masks) for photolithographic prodn. of computer chips. The **self-assembly** properties of (A) can be exploited to produce switching elements for chips.
1/2

L14 ANSWER 11 OF 13 WPIDS COPYRIGHT 1998 DERWENT INFORMATION LTD
AN 90-290604 [39] WPIDS
CR 88-271319 [39]
DNC C90-125472
TI Hepatitis B core antigen fusion proteins - having the amino terminus linked to a heterologous antigenic epitope.
DC B04 D16
IN CARROLL, A R; CLARKE, B E; HIGHFIELD, P E
PA (WELL) WELLCOME FOUND LTD
CYC 1
PI AU 9049273 A 900809 (9039)*
AU 642859 B 931104 (9351)
ADT AU 9049273 A AU 90-49273 900208; AU 642859 B Div ex AU 87-69792 870306, AU 90-49273 900208
FDT AU 642859 B Previous Publ. AU 9049273
PRAI US 87-12948 870210
AB **AU 9049273A**UPAB: 940209
The following are claimed: (A) a fusion **protein** comprising hepatitis B core antigen (HBcAg) to the amino terminus of which is linked to a heterologous antigenic epitope, e.g. an epitope of foot-and-mouth disease virus (FMDV), poliovirus, human rhinovirus, influenza virus, hepatitis B virus surface antigen or Plasmodium falciparum; (B) a DNA sequence encoding the fusion **protein** of (A); (C) a vector which incorporates a DNA sequence of (B) and which is capable, when provided in a suitable host, of expressing the fusion **protein**; (D) a host in which is provided a vector as in (C).

USE/ADVANTAGE - The fusion **protein** can **self-assembled** into regular 27nm-core like particles and is

used as a vaccine. @(27pp Dwg.No.0/5)
0/5

L14 ANSWER 12 OF 13 WPIDS COPYRIGHT 1998 DERWENT INFORMATION LTD
AN 89-061259 [08] WPIDS
DNN N89-046623 DNC C89-027144
TI Receptor membrane for bio-sensors - comprising a closely packed array of self-assembling amphiphilic molecules having ion channels and/or receptor molecules.
DC B04 D16 S03
IN BRAACH-MAKSVYTIS, V L B; CORNELL, B A; BRAACH-MAKSVYTIS, V L; BRAACHMAKS, V L B; BRAACH-MAKSVYTIS, V
PA (CSIR) COMMONWEALTH SCI & IND RES ORG; (AUME-N) AUSTRALIA MEMBRANE & BIOTECHNOLOGY RES INST; (AUME-N) AUSTRALIAN MEMBRANE & BIOTECHNOLOGY INST
CYC 15
PI WO 8901159 A 890209 (8908)* EN 40 pp
RW: AT BE CH DE FR GB IT LI LU NL SE
W: AU JP US
AU 8821279 A 890301 (8923)
EP 382736 A 900822 (9034)
R: AT BE CH DE FR GB IT LI LU NL SE
JP 03503209 W 910718 (9135)
EP 382736 B1 941102 (9442) EN 24 pp
R: AT BE CH DE FR GB IT LI LU NL SE
DE 3852036 G 941208 (9503)
EP 382736 A4 901205 (9514)
CA 1335879 C 950613 (9531)
US 5436170 A 950725 (9535) 15 pp
JP 2682859 B2 971126 (9801) 14 pp
US 5693477 A 971202 (9803) 13 pp
ADT WO 8901159 A WO 88-AU273 880727; EP 382736 A EP 88-907164 880727; JP 03503209 W JP 88-506329 880727; EP 382736 B1 EP 88-907164 880727, WO 88-AU273 880727; DE 3852036 G DE 88-3852036 880727, EP 88-907164 880727, WO 88-AU273 880727; EP 382736 A4 EP 88-907164 ; CA 1335879 C CA 88-573217 880727; US 5436170 A WO 88-AU273 880727, US 90-473932 900125; JP 2682859 B2 JP 88-506329 880727, WO 88-AU273 880727; US 5693477 A Cont of US 90-473932 900125, US 95-447569 950523
FDT EP 382736 B1 Based on WO 8901159; DE 3852036 G Based on EP 382736, Based on WO 8901159; US 5436170 A Based on WO 8901159; JP 2682859 B2 Previous Publ. JP 03503209, Based on WO 8901159; US 5693477 A Cont of US 5436170
PRAI AU 87-4478 870921; AU 87-3346 870727; AU 87-3348 870727; AU 88-21279 870728; AU 87-3453 870731
AB WO 8901159 A UPAB: 960520
A membrane comprising a closely packed array of **self-assembling** amphiphilic molecules is claimed characterised in that (1) the membrane includes ion channels selected from **peptides** capable of forming helices and aggregates, podands, coronands, cryptands and combinations and/or (2) at least a proportion of the **self-assembling** amphiphilic molecules comprise a receptor molecule conjugated with a supporting entity, the receptor molecule having a receptor site and being selected from immunoglobulins, antibodies, antibody fragments, dyes, enzymes and lectins, the supporting entity being selected from a lipid head gp., a hydrocarbon chain, a cross-linkable molecule and a

membrane **protein**, the supporting entity being conjugated with the receptor molecule at an end remote from the receptor site.

Pref. the ion channels are gramicidin or analogues. Also claimed is a biosensor comprising a membrane bilayer attached to a solid surface, the bilayer having an upper and lower layer, the lower layer being adjacent the solid surface and being provided with gps. reactive with the solid surface or with gps. provided on this, each layer of the bilayer being composed of **self-assembling** amphiphilic molecules and gramicidin monomers, and where a receptor moiety is attached to the gramicidin monomers in the upper layer. The solid surface is pref. a palladium-coated **glass** electrode.

USE/ADVANTAGE - The membranes are used partic. for the prodn. of biosensors. They have a high density of receptor sites and serve as highly selective binding surfaces to which molecular species to be detected will bind.

0/6

Dwg.0/6

L14 ANSWER 13 OF 13 WPIDS COPYRIGHT 1998 DERWENT INFORMATION LTD
AN 88-147607 [21] WPIDS
CR 88-147608 [21]
DNN N88-112704 DNC C88-065779
TI Particulate hybrid HIV antigens - prepd. as a fusion with a particle-forming protein encoded by retro-transposon or RNA virus.
DC B04 D16 S03
IN ADAMS, S E; KINGSMAN, A J; KINGSMAN, S M; MALIM, M H; MELLOR, E C; MELLOR, E J C
PA (BRBI-N) BRITISH BIO-TECHNOLOGY LTD; (BRBI-N) BRITISH BIOTECH PHARM LTD; (OXFO-N) OXFORD GENE SYSTEMS
CYC 19
PI WO 8803562 A 880519 (8821)* EN 43 pp
RW: AT BE CH DE FR GB IT LU NL SE
W: AU DK HU JP NO
AU 8781534 A 880601 (8841)
NO 8802918 A 881010 (8846)
DK 8803621 A 880630 (8904)
EP 329671 A 890830 (8935) EN
R: AT BE CH DE FR GB IT LI LU NL SE
ES 2010230 A 891101 (9004)
HU 50875 T 900328 (9019)
US 4918166 A 900417 (9020)
JP 02501026 W 900412 (9021)
JP 02501107 W 900419 (9022)
EP 329671 B1 940112 (9403) EN 31 pp
R: AT BE CH DE FR GB IT LI LU NL SE
EP 330661 B1 940112 (9403) EN 133 pp
R: AT BE CH DE FR GB IT LI LU NL SE
DE 3788806 G 940224 (9409)
DE 3788807 G 940224 (9409)
NO 177794 B 950814 (9538)
US 5463024 A 951031 (9549) 26 pp
CA 1339263 C 970812 (9746)
JP 09248191 A 970922 (9748) 24 pp
ADT WO 8803562 A WO 87-GB763 871028; EP 329671 A EP 87-907014 871028; ES 2010230 A ES 87-3104 871030; US 4918166 A US 87-112083 871026; JP 02501026 W JP 87-506664 871028; JP 02501107 W JP 87-506486 871028;

EP 329671 B1 EP 87-907014 871028, WO 87-GB763 871028; EP 330661 B1 EP 87-906926 871028, WO 87-GB764 871028; DE 3788806 G DE 87-3788806 871028, EP 87-907014 871028, WO 87-GB763 871028; DE 3788807 G DE 87-3788807 871028, EP 87-906926 871028, WO 87-GB764 871028; NO 177794 B WO 87-GB763 871028, NO 88-2918 880630; US 5463024 A CIP of US 87-36807 870410, Cont of US 87-112082 871026, Cont of US 91-652054 910207, US 93-115397 930901; CA 1339263 C CA 87-550668 871030; JP 09248191 A Div ex JP 87-506664 871028, JP 96-128724 871028

FDT EP 329671 B1 Based on WO 8803562; EP 330661 B1 Based on WO 8803563; DE 3788806 G Based on EP 329671, Based on WO 8803562; DE 3788807 G Based on EP 330661, Based on WO 8803563; NO 177794 B Previous Publ. NO 8802918; US 5463024 A Cont of US 5008373, CIP of US 5041385

PRAI US 87-36888 870410; GB 86-26148 861101; GB 87-8532 870409; GB 87-8531 870409; US 87-36807 870410

AB WO 8803562 A UPAB: 951004

A fusion protein capable of assembling into a particle comprises a first amino acid sequence (I) homologous with a particle-forming protein encoded by a retrotransposon or an RNA virus and a second amino acid sequence (II) homologous with an HIV protein, where (II) does not form an amino acid sequence naturally directly fused to (I) by the retrotransposon or RNA retrovirus.

(I) may be the prod. of the yeast Ty TYA gene, the prod. of copia and copia-like elements from insects or the gag gene of RNA retroviruses.

USE/ADVANTAGE - The fusion proteins form particles and present the added antigen in a high mol. wt. polyvalent particulate form that is ideal for the stimulation of the mammalian immune response. They may be used to form vaccines, antibodies, diagnostic reagents or for producing pure HIV antigen by cleaving HIV from the fusion proteins.

Dwg.0/14

Dwg.0/14

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L16 ANSWER 1 OF 1 WPIDS COPYRIGHT 1998 DERWENT INFORMATION LTD

AN 96-238747 [24] WPIDS

CR 95-221302 [29]

DNN N96-199877 DNC C96-076145

TI Creating two dimensional **pattern** of thiolate cpds. on substrate - by oxidising regions of assembled monolayer of one thiol then exchanging oxidised cpds. with second thiol, esp. used for selective binding of e.g. proteins, DNA, for biosensor(s) and immunoassays.

DC B04 D16 G06 J04 L03 P83 P84

IN TARLOV, M J

PA (USDC) US DEPT OF COMMERCE

CYC 1

PI US 5514501 A 960507 (9624)* 12 pp

ADT US 5514501 A US 94-255961 940607

PRAI US 94-255961 940607

AB US 5514501 A UPAB: 960618

A two-dimensional distribution (**pattern**) of thiolate cpds. in a **self-assembled** monolayer (SAM), formed on a substrate is created by: (1) illuminating a SAM made from a first

thiolate (Ia) in presence of O2 with high frequency electromagnetic radiation according to a predetermined **pattern**; then (2) immersing the substrate in a soln. of a second thiolate (Ib) so that oxidised (Ia) in the illuminated regions are replaced by (Ib). Opt. the (Ia)-(Ib) SAM is then immersed in a soln. of a biological cpd. (A) that preferentially adsorbs onto one of (Ia) and (Ib) for attachment of (A) to specific areas of the surface.

USE - The **patterns** can be used to bind **proteins**, enzymes, DNA or cells at specific locations, e.g. for use in biosensors, diagnostic immunoassays, DNA assay or sequencing, pharmacological or toxicological tests or cell growth studies. Partic. applications are miniaturised multi-binding sensors for use in blood vessels or single cells, miniaturised DNA sequencers supported on microchips or (using the **patterns** as resists for selective chemical etching) to make individually addressable microelectrodes.

ADVANTAGE - In the **pattern** the line spacing can be less than 100 mu; photopatterning involves no physical contact with the sample (so avoiding deformation) and no photoactive pendant groups are required.

Dwg.1/7